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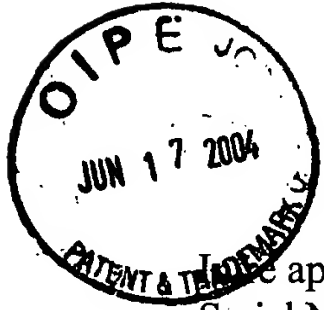
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FILE NO. ARCO-25,200 DP50-06-1641C

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Indice application of: Steve Ingistov
Serial No.: 09/288,943
Filed: 04/09/99
Group: 3745
Examiner: J. Kwon

For: "Turbine Power Plant Having Minimal-
Contact Brush Seal Augmented
Labyrinth Seal"

MS Board of Appeals
Commissioner for Patents
P.O. Box 1450
Alexandria, VA. 22313-1450

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(Date of Deposit)

F. Lindsey Scott
(Signature)

6-17-04
(Date of Signature)

TRANSMITTAL LETTER FOR APPLICANT'S BRIEF ON APPEAL

Enclosed herewith, in triplicate, is Applicant's Brief on Appeal in the subject application.

Enclosed herewith are triplicate copies of this Transmittal Letter.

Enclosed herewith is a check for the fee of \$330.00 required for filing this Brief on Appeal.

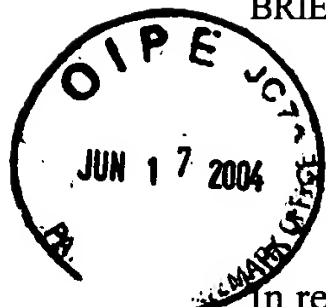
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Respectfully submitted,

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arco\25200\Transmittal Letter for Applicant's Brief On Appeal 061604



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Steve Ingistov
Serial No.: 09/288,943
Filed: 4/9/99
Group: 3745
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6-17-04
(Date)

L. Lindsey Scott
(Signature)

BRIEF ON APPEAL

Pursuant to a Notice of Appeal filed April 20, 2004, Applicant sets forth herein the authorities and arguments upon which Applicant relies. Applicant encloses herewith triplicate copies of this Brief on Appeal.

By separate Transmittal Letter filed herewith Applicant has enclosed a check for \$330.00 in payment of the fee for filing this Brief in support of an appeal.

Please credit any overpayment or charge any additional fees due for this Brief on Appeal to Deposit Account 50-0232.

Real Party In Interest

Watson Cogeneration Company is the owner of the subject patent by an assignment of U.S. Serial No. 08/656,654, the parent application of continuation application U.S. Serial No. 08/892,738, which is the parent application of this continuation application. The assignment is recorded at Reel 8093 Frame 0212.

Status of the Claims

This Application was originally filed April 9, 1999 as U.S. Serial No. 09/288,943 and contained Claims 1-20, of which Claims 1, 11, and 17 were independent. In a

Preliminary Amendment, Claims 1-20 were cancelled and new Claims 21-31 were added. New Claims 21-31, as stated in the Preliminary Amendment, represented the non-allowed claims from U.S. Serial No. 08/892,738, (a continuation of U.S. Serial No. 08/656,564 filed May 31, 1996 in which Claims 1-20 were allowed) which did not include features related to the admission of cooling air into the barrel of a turbine engine in addition to that passing the brush seal. Specific reservation of the right to file the non-allowed claims in a continuation application was made. The claims, which include this feature, have been allowed and issued in U.S. Patent 5,961,279 based upon U.S. Serial No. 08/892,738. The claims allowed were Claims 5-8, 13-16, 20, and 22-24 in U.S. Serial No. 08/892,738. This restatement of the claims was made to simplify claim numbering and present the claims in better order for consideration.

In this Preliminary Amendment filed April 9, 1999, it was requested that the Examiner declare an Interference between the subject application and U.S. Patent 5,630,590 (the '590 Patent). These claims were substantially the same claims as were filed originally in U.S. Serial No. 08/892,738. New Claims 32-40 were added in the preliminary amendment, for the express purpose of provoking an Interference with the '590 Patent under 37 C.F.R. 1.608(a).

The present Application, U.S. Serial No. 09/288,943, was filed April 9, 1999 as a continuation of U.S. Serial No. 08/892,738, which was a continuation of U.S. Serial No. 08/656,564.

A Status Inquiry was submitted October 12, 1999 to determine the status of the subject Application.

A Second Preliminary Amendment was made after discussions with Examiner Kwon. Applicant's attorney understood that Examiner Kwon had objections to Applicant's Claims 21-31 on various formal grounds. In this discussion it was understood by Applicant's attorney that elimination of these claims could enable favorable consideration of the request for Interference. Accordingly, Applicant cancelled Claims 21-31 with the understanding that this would place the case in condition for Declaration of an Interference.

Subsequently, an Office Action dated July 18, 2000, was issued. In this Office Action, Applicant's Claims 32-40 were rejected on the basis that these claims were not filed within one year of the issue date of the '590 Patent. The Office Action stated that the proposed Interference could not be granted unless the Applicant had claimed substantially the same subject matter within one year of the issue date of the '590 Patent.

In response, Applicant filed an extensive Amendment on August 17, 2000. In this Amendment, Applicant added a new Claim 41, which Applicant stated represented Claim 1 of the originally filed U.S. Serial No. 08/656,564, filed May 31, 1996. This claim was entered. The claims then pending were Applicant's Claims 32-41. Claims 32-40 represent the claims copied for purposes of provoking the Interference. Claim 41 is the same as Claim 1 in U.S. Serial No. 08/656,564.

The amendment included various appendices, which demonstrated that Applicant has at no time abandoned the claims originally filed and that Applicant has sought to move these claims forward to an Interference and ultimately to issue.

The claims as then currently pending were rejected on the basis that the claims were first submitted on the filing date of the instant application, which is not within one year of the issue date of the '590 Patent and that Applicant has not claimed the same subject matter as the '590 Patent.

It is noted that the '590 Patent and U.S. Serial No. 08/656,564 were co-pending from May 31, 1996 until May 20, 1997 before the same examiner. The claims in U.S. Serial No. 08/656,564 were continued after a Notice of Allowance in U.S. Serial No. 08/892,738 filed July 15, 1997, in slightly amended form.

It is respectfully pointed out that Claim 41 is the same claim appearing in U.S. Serial No. 08/656,564 filed May 31, 1996. This claim was indicated allowable in a first Office Action Allowance mailed April 15, 1997, on U.S. Serial No. 08/656,564 by Examiner Kwon. This Application was re-filed as U.S. Serial No. 08/892,738 and substantially the same claims were continued in that Application. Clearly Claim 41 was pending within one year of the issue date of the '590 Patent since these claims were co-pending with the '590 Patent for almost one year. No explanation has been offered as to why the Patent Office did not declare an Interference during the period of co-pendency.

In an amendment filed May 23, 2003, Applicant added Claims 42-52 corresponding to Claims 21-31 filed in U.S. Serial No. 09/288,943 filed April 9, 1999 and corresponding to claims in U.S. Serial No. 08/892,738 filed July 15, 1997 and in U.S. Serial No. 08/656,564 filed May 30, 1996.

The currently pending claims are Claims 41-52, which Applicant considers to be entitled to the filing date of U.S. Serial No. 08/656,564 filed May 30, 1996.

Status of Amendments

An amendment was mailed March 24, 2004 in response to a Final Rejection mailed January 26, 2004. This Amendment was entered, but summarily indicated to not place the application in condition for allowance.

The present state of Applicant's claims is that Applicant's Claims 41-52 remain subject to the January 26, 2004 final rejection wherein Applicant's Claim 41 was rejected under 35 U.S.C. 103 as unpatentable over U.S. Patent 5,630,590 issued May 20, 1997 to Joseph P. Bouchard and Merrell W. Long, based upon U.S. Serial No. 625,427 filed March 26, 1996 (the '590 Patent). Claim 41 has also been rejected under 35 U.S.C. 103(a) as unpatentable over U.S. Patent 5,308,088 issued May 3, 1994 to Edward Atkinson and Brent L. Bristol (Atkinson, et al).

Applicant's Claims 42-52 have been rejected under 35 U.S.C. 103(a) as being unpatentable over the '590 Patent.

Summary of the Invention

Applicant's claimed invention comprises the use of a brush seal in a power plant including a stationary gas turbine engine. A multi-stage axial compressor is included in the power plant to supply compressed air for combustion to generate hot gases to drive the turbine. The compressor includes a rotor, which has a cylindrical land region downstream of a last-stage of the compressor. The land region has an outside diameter D. The turbine is coupled via a shaft to the rotor of the compressor. A stationary inner barrel is positioned downstream of the compressor and around the shaft to form a chamber between the compressor and the turbine. The chamber comprises a passageway through the stationary inner barrel from an air inlet near the compressor outlet airflow to an outlet from the chamber near the intake to the turbine.

In the past, a labyrinth, as shown for instance in U.S. Patent 5,961,279 in Figure 2, was used to control the flow of air into the inner barrel from the compressor. According to Applicant's claimed invention, a brush seal is positioned on the inner barrel for restricting air passage into the chamber from the compressor. The brush seal comprises a ring shaped holder, a multiplicity of bristle members extending radially inward from the holder toward the outer diameter D of the rotor and a means for fastening the holder to the inner barrel member. The bristles are desirably of a size so that when the plant is inactive the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

Issues

The issues presented by this Appeal are (1) whether Applicant's Claim 41 should be declared to be the subject of an Interference with the '590 Patent as previously requested by Applicant; (2) whether Applicant's Claim 41 is unpatentable over Atkinson, et al under 35 U.S.C. 103(a); and, (3) whether Applicant's Claims 42-52 are properly rejected under 35 U.S.C. 103(a) as unpatentable over the '590 Patent, in lieu of the Declaration of an Interference between Applicant's claims and the '590 Patent as previously requested by Applicant. .

Grouping of the Claims

Applicant's claims are grouped as Claim 41 constituting a first group with Claims 42-52 constituting a second group.

Applicant's Claim 41 constitutes a first group, which constitutes Claim 1 corresponding to Claim 1 in U.S. Serial No. 08/656,564 filed May 31, 1996. This claim along with Claims 2 - 20 in the Application, were allowed in a Notice of Allowance and Issue Fee Due mailed April 15, 1997 by Examiner Kwon. The same claim was filed with only minor amendments in U.S. Serial No. 08/892,738, filed July 15, 1997, as a continuation of U.S. Serial No. 08/656,564. U. S. Serial No. 08/892,738 was pending until it issued October 5, 1999. This claim in U.S. Serial No. 08/656,564 was co-pending with U.S. Serial No. 08/625,427 filed March 26, 1996 and ultimately issued May 20, 1997.

It is clear that this claim, claiming substantially the same invention as the '590 Patent was not only pending within a year of the issue date of the '590 Patent, but was co-

pending with the '590 patent application for almost twelve months before the patent office. Applicant has continued to maintain the position that Applicant intends to seek an Interference with the '590 Patent throughout the entire prosecution of this Application and its predecessor applications.

The second group of claims, which constitute Claims 32-40, are claims filed in U.S. Serial No. 09/288,943 and corresponding to claims in U.S. Serial No. 08/892,738 and U.S. Serial No. 08/656,504 filed May 30, 1996.

Background

The '590 Patent was filed as U.S. Serial No. 08/625,427 on March 26, 1996.

Applicant considers that the invention claimed in the '590 Patent was derived from Applicant by the patentees' in the '590 Patent. Applicant filed U.S. Serial No. 08/656,564 on May 31, 1996. This Application was allowed in a First Office Action Allowance on April 15, 1997.

For a variety of reasons, Applicant elected to amend the claims of this Application. Accordingly, a Continuation Application was filed on July 15, 1997, as U.S. Serial No. 08/892,738. The claims in this Application were slightly amended from the claims in U.S. Serial No. 08/656,564. The claims in U.S. Serial No. 08/656,564 are shown in Appendix A, and the Notice of Allowance is shown in Appendix B. It could be assumed based upon the Notice of Allowance that the allowed claims were in compliance with 35 U.S.C 112. The claims in U.S. Serial 08/892,738 are shown in Appendix C. No claims of the parent case were deleted in the claims filed as shown in Appendix C. Subsequently, preliminary amendments shown in Appendix D and E were made.

A First Office Action on U.S. Serial No. 08/892,738 was mailed June 4, 1998. In this Office Action, in pertinent part, Applicant's claims were rejected for the first time under 35 U.S.C. 103, in view of the '590 patent. The Examiner opined that the '590 Patent disclosed the invention except for a specific dimension for a seal clearance. Applicant's other claims relating to other features were allowable if rewritten in independent form.

Applicant responded to this Office Action with an amendment making certain amendments to the claims.

Applicant's Claims 2-4, 9-12, 17-19 21 and 26 were again rejected under 35 U.S.C. 103 as being unpatentable over the '590 Patent. The Examiner repeated his position that the only difference was a specific dimension. It is notable, however, that Claims 5-8, 13-16, and 23, which were indicated allowable, included the feature that an additional air supply was provided to the chamber. This is the distinction, rather than the dimension referred to by the Examiner, which differentiates these claims. It is noteworthy that in the response filed January 11, 1999, Applicant expressly reserves the right by maintaining Claims 1-4, 9-12, 17-19 and 21 in the application to provoke an Interference with the '590 patent.

In the next Amendment dated March 30, 1999, Applicant specifically reserved the right with respect to Claims 1-4, 9-12, 17-19, 21 and 26 to file these claims in a continuing application. U.S. Patent 5,961,279 (the '279 patent) was then issued based upon the allowed claims in U.S. Serial No. 08/892,738.

The present Application, U. S. Serial No. 09/288,943, is a continuation of U.S. Serial No. 08/892,738, which is a continuation of Application 08/656,564. Accordingly, Applicant is entitled to make claims, which were filed in U.S. Serial No. 08/665,564.

In the present Application as initially filed, Claims 1-20, as included in U.S. Serial No. 08/656,564, were included. In a Preliminary Amendment, Claims 1-20 were cancelled and Claims 21-31 were added. Claims 21-31, as stated in the Preliminary Amendment, represent claims from U.S. Serial No. 08/892,738, which do not include features related to the admission of cooling air into the barrel of the turbine engine in addition to that passing the brush seal. Claims which included this feature had previously been allowed in the '279 patent. Applicant then made the representations necessary to establish the criteria for an Interference. Applicant also copied Claims 32-40 from the '590 Patent for the express purpose of provoking an Interference. Applicant also proposed a count for the Interference, which is substantially the count of Claim 1 of the '590 patent.

The Patent Office had not acted on this case by October 12, 1999; therefore, a Status Inquiry was submitted. Numerous calls were made to Examiner Kwon both before and after this Status Inquiry to determine the status of the case.

A second Preliminary Amendment was filed April 13, 2000, based upon conversations with Examiner Kwon wherein it was indicated that the Examiner had various formal objections to Claims 21-31, notwithstanding his initial allowance of these claims in a first action allowance in U.S. Serial No. 08/656,564. In any event, Applicant cancelled all of these claims with the understanding that this would permit the declaration of the Interference based upon the count. Further, Applicant supplied a claims chart which Applicant understood the Examiner to consider as desirable to support the declaration of the Interference. The claims chart showed the support in U.S. Serial No. 09/288,943 for the claims in the '590 patent.

In response to this Amendment and attempted cooperation with the Patent Office, a rejection was made under 35 U.S.C. 135(b). It was argued that Claims 32-34 were not made prior to one year from the date the '590 Patent was issued. Applicant was given thirty (30) days from the mailing date of the Notice to comply with this omission. In response, Applicant filed an Amendment dated August 17, 2000. In this Amendment, Applicant added a new Claim 41. As explained in the Amendment, new Claim 41 corresponds to Claim 1 as originally filed in U.S. Serial No. 08/656,564. This claim is referred to in the discussion as Claim 1, notwithstanding the fact that the claim bears number 41 in this application.

It is considered that Applicant is fully entitled to make this claim since Applicant is entitled to the benefit of the filing date of U.S. Serial No. 08/656,564. It is submitted that this claim fully covers or renders obvious all the features claimed in the claims of the '590 patent. Most particularly, please note that Applicant's specification includes full support for a refurbished gas turbine engine (or a new gas turbine engine) with a component having at least one knife-edge seal for inhibiting air leakage through an intercomponent gap between the component and a second component, wherein the refurbished component (which is not identified as either the first or the second component in the '590 Patent claims) is characterized by a brush seal mounted on the refurbished component (the stationary inner barrel) in tandem with the knife-edged seal, the bristles of the seal extending toward the second component for impeding the leakage of air through the intercomponent gap. It is respectfully submitted that Claim 41 includes all the features of

this claim. It is further submitted that all of the remaining claims of the '590 Patent are rendered obvious or are within the scope of this claim.

It is further noted that the "gap" referred to by the Examiner, which appears in subparagraph (e)iii of Applicant's Claim 41 refers to a gap between the Diameter and the end of the bristles. There is no reference to this gap in the '590 Patent claims. The intercomponent gap referred to in that claim refers to the gap between the first component and the second component. Accordingly, it is respectfully submitted that this claim, which the Examiner entered with no objections, covers the same invention claimed by the '590 patent. It is further submitted that the remaining Claims 32-40 also claim substantially the same invention as Applicant has claimed since April 4, 1996.

The Examiner's response to this argument was that Applicant's Claims 32-41 appeared first on April 9, 1999. This position is seriously flawed in that Claim 41 was first filed as Claim 1 on April 4, 1996. The reason remaining Claims 32-41 are the only other remaining claims in the case is because of the accommodation to the Examiner in an attempt to provoke an Interference.

It is believed clear that Claim 41 is entitled to a filing date of May 31, 1996, and accordingly, since it claims the same invention as the '590 Patent, entitles Applicant to an Interference with the '590 Patent. As indicated previously, it is believed that all of the remaining claims of the '590 Patent are obvious in view of Applicant's Claim 41. Applicant has resubmitted Claims 21-31 as pending Claims 42-52.

It is respectfully submitted further that Applicant's claims are the same invention as claimed in the '590 Patent and that Applicant's claims were not only pending within one year of the issue date of the '590 Patent but these claims were pending for almost one year prior to the issuance of the '590 Patent. Accordingly, any attempt to claim that Applicant did not have claims pending for substantially the same invention as claimed in the '590 Patent within one year of the issuance of the '590 Patent is simply ludicrous.

Further it is pointed out that in MPEP, Section 2307, cited by the Examiner, it is stated that "Examiner should note that 37 C.F.R. 1.607 requires the examination of an application in which applicant seeks an Interference with a patent 'shall be conducted with special dispatch.'" This case has not been handled with "special dispatch." This case was

filed April 9, 1999, and to date no Interference has been declared and only recently has this case been given a Final Rejection. It is respectfully submitted that the handling of this case is not in compliance with MPEP, Section 2307 and that the handling of this case has not been in accordance with 37 C.F.R. 1.607(a). It is believed that Applicant has fully complied with all requirement of 37 C.F.R. 1.607(a) and that the foregoing recitation of facts is more than sufficient to establish that Applicant's claims were pending within one year of the issuance of the '590 patent.

Further a Petition to Make Special was granted in this application September 24, 2003.

It is also further noted that Applicant's previous Appeal Brief filed February 27, 2001 was dismissed by the Examiner, without the opportunity for Applicant's Appeal to be heard by the Board of Appeals.

Remarks/Argument

The rejection of Applicant's Claim 41 under 35 U.S.C. 103(a) as unpatentable over the '590 Patent is respectfully traversed. The Examiner has alleged that the '590 Patent discloses all the limitations of Applicant's claimed invention except for the gap between the bristles and the land surface. Even a casual observation of Figure 4 of the '590 Patent indicates that a gap is left between the land region and the brush. Applicant's drawings show a similar gap. Therefore, this argued difference does not exist between the two references.

Applicant has repeatedly requested that Applicant's application be declared to be in an Interference with the '590 Patent.

The Patent Office, while they have previously allowed Applicant's claim, either as submitted in the originally filed application or as currently pending, in separate Office Actions, has again declined to declare an Interference. The Examiner has basically conceded that the two inventions are the same. It is difficult to understand how the Patent Office can ignore the existing law as set forth in 35 U.S.C. 135(a) and in 37 C.F.R. 1.601(n), which provides in part, "Invention 'A' is the **same patentable invention** as an invention 'B' when invention "A" is the same as (35 U.S.C. 102) or is obvious (35 U.S.C.

103) in view of invention 'B' assuming invention 'B' is prior art with respect to invention 'A.'

It is further noted that the Patent Office on November 26, 2003 proposed revised rules to implement the so-called two-way test with the suggestion that this change is to implement the interpretation asserted by the Patent Office in *Eli Lilly & Co. v. Board of Regents of the University of Washington*, 67 USPQ2d 1161 (Fed. Cir. 2003). The court agreed with the Patent Office's amicus brief in that case to support the two-way test. Why the Patent Office has elected to proceed in a contra direction in this case is not clear to the Applicant nor does Applicant believe it will be clear to the Board of Appeals.

The Court of Appeals for the Federal Circuit has reached a similar conclusion in *Medichem S. A. v. Rolabo S.L.*, 70 USPQ2d 1283 (CAFC 2003).

The Examiner has correctly concluded that there is only a small difference between the reference and Applicant's claimed invention and that this difference is simply the attachment of a numerical limitation to a gap, which is shown by both parties.

Accordingly, it is respectfully requested that all rejections of Applicant's claims under 35 U.S.C. 103, in view of the '590 Patent be withdrawn and an Interference declared.

It is believed clear in view of the foregoing discussion that, Applicant's claims are clearly entitled to be in an Interference with the '590 Patent. Such is respectfully solicited.

The remaining reference cited by the Examiner is also not considered to show or suggest Applicant's claimed invention as will be discussed further.

Claim 41 has been further rejected under 35 U.S.C. 103(a) as unpatentable over Atkinson, et al. This rejection is respectfully traversed. Particularly, the Examiner has opined in his section headed "Response To Arguments" that Applicant's distinction that the reference is directed to aircraft engines rather than stationary power plants is not a viable argument because it is not included in the body of the claims and because limitations found in a preamble cannot be a distinguishing limitation. This position is respectfully traversed.

It is noted that in Applicant's Claim 41, the temperature clearance of the gap is established during a period when "the" power plant (required in the preamble) is inactive.

It is submitted that the reference back to the preamble as an antecedent makes the preamble part of the claim. Further, it will be noted that in recent cases, especially *Union Oil Co. of California v. Atlantic Richfield Co.*, 54 USPQ2d 1227, 1231 (Fed. Cir. 2000), it was held that,

“Asserted claims for unleaded gasoline claim compositions of matter and as such cannot embrace only certain uses of that compositions without mutating into method claims. However claims are properly construed to cover only standard automotive gasoline, since claim language specifies fuels for an ‘automotive engine,’ not aviation or racing engine, since explicit reference to unleaded gasoline invokes standard automotive fuels rather than specialized fuels, and since the specification shows that patentees tailored their research to ordinary fuels for use in standard passenger cars.”

The interpretation required that the limitations from the preamble, i.e., “an unleaded gasoline suitable for combustion in an automotive engine” or “an unleaded gasoline fuel suitable for combustion in a spark ignition automotive engine” be included.

“The District Court thus construed the claims to cover only a narrow range of fuel compositions, namely only standard automotive gasoline. The District Court correctly excluded from claim scope a broader class of petroleum formulations, such as aviation fuels or racing fuels. The claim language confirms the District Court’s reading of the claims to cover mass market automotive gasoline.” This conclusion required limitation to the preamble limitations.

In the present instance, not only does the claim refer back to the preamble as the antecedent for one of the terms used in the claim to define one of the conditions in the claim, but in Applicant’s specification there is a discussion at column 1, particularly beginning at line 39, where the contrast between aircraft turbine applications and large stationary turbine plants is drawn. It is very clear that the specification is directed to the use of stationary turbine power generators of the type used for utility services as stated in paragraph one under the background.

Further, even were the preamble not included in the interpretation of the claim, which Applicant submits is an error, it is respectfully submitted that the elements of

Applicant's claim, are not shown or suggested by Atkinson, et al. Please note in Applicant's claims that the stationary gas turbine engine for a power plant is recited to include, a multi-state axial compressor, a turbine shaft coupled to a rotor of the compressor, a stationary inner barrel downstream from the compressor through which air flows from the compressor to the barrel defining a chamber, for cooling inside the inner barrel, and to mixture with combustion gases to the turbine with the inner chamber receiving a portion of the air for cooling the inside of the chamber. The brush seal is positioned to restrict, but not prevent, air passage into the inner barrel chamber from the compressor.

In Atkinson, et al by contrast, the brush appears to prevent the passage of all air, since it is indicated that it is designed to maintain a high differential pressure across the brush. Unlike the '590 Patent and Applicant, it appears that Atkinson, et al allows no air to pass. It is stated that the brush of Atkinson, et al is positioned in a gas turbine engine. The gas turbine engine in the power plant is well downstream from the brush seal used by Applicant, which is used to restrict the passage of air to cool the inside of an inner barrel. This inner barrel is between a compressor and a turbine. The turbine and compressor are separate units connected by a shaft that includes a bearing, which is cooled by airflow inside the inner barrel. In any event, it is indicated that the inner barrel has a passageway for cooling air from the compressor. There is no disclosure in Atkinson, et al that suggests that a seal should be used in this location for this purpose.

As indicated previously, Atkinson, et al states that the disclosed device was developed for use in the aircraft industry. This results in different requirements for engines as referred to in Applicant's specification at column 1, lines 39-49.

As stated in Applicant's application, brush seals have not been used previously in large power turbines for a number of reasons. These reasons relate to the difficulty with brushes formed of materials for contact with the materials of construction of the stationary power plant that are selected for their thermal properties rather than for their resistance as wear surfaces contacted by a brush.

Accordingly, those skilled in the art would not consider Atkinson, et al to be suitable for use in a large-scale turbine power generation facility. Furthermore, the bristles

are not positioned in the compressor or the barrel. These bristles are stated to be attached to gas turbine engine stator structures. As well known, such engine stator structures are blades that are fixed in position relative to turbine rotor blades to affect the flow through the turbine of hot gases that rotate the rotor blades. These engine stator blades have a seal apparently attached to their inner end to contact the shaft that rotates with the rotor blades in the turbine. This is a radically different application in a radically different machine environment than addressed by Applicant. Atkinson, et al discloses a complete seal so that gas does not flow past the seal even at high-pressure differentials at high temperatures inherent in the inside of a gas turbine. The Atkinson, et al seal is positioned inside a gas turbine that is exposed to very high temperatures, whereas Applicant's seal is positioned in the outlet from an air compressor which is not at similar pressure and temperature conditions and which diverts a portion of the air discharged from the compressor for use as cooling air through a barrel positioned between the compressor and the turbine.

The Examiner's comments that the differences argued by the Applicant are not reflected in the claim language is respectfully and specifically traversed. No feature argued above is missing from Applicant's claims. Each of the elements argued is present and is present with or without reference to the preamble.

The Examiner is correct in his assertion that the test for the teaching of obviousness of a reference is what it would teach one skilled in the art and not whether a structure could be bodily substituted in the basic reference. Under this criteria, Atkinson, et al, which discloses a seal for use in a very high temperature turbine on stator blades, does nothing to suggest to those skilled in the art that a brush should be used between a compressor and a turbine to regulate the flow of cooling air into a inner barrel member. These are radically different applications and there is no suggestion in Atkinson, et al that this seal should be used for such an application.

The Examiner has further opined that Atkinson, et al discloses a safety margin of clearance of the brush seal in column 1, lines 55-60 and at column 2, lines 54 through column 3, line 9. The material at column 1, lines 55-60 indicate that the prevention of damage to the seal requires that the leakage gap be of a minimum size. This follows the discussion of the gap between the backing plate and the rotating engine member, which is

large enough to accommodate the expected operating transient conditions. This “gap” is identified as the gap between a backing plate for the seal and the rotary surface. As this gap becomes larger, its ability to function effectively declines accordingly. To prevent damage to the seal or to the opposing rotor motor, the gap must be of a certain minimum size. The minimum size requirement may result in making the brush seal ineffective, etc. A fair reading of this material indicates that the entire discussion is directed to the gap between the backing plate and the rotating member.

In column 2, lines 54 to column 3, line 9, the discussion is directed to a gap 30. This gap is shown in Figure 1 and is the same gap referred to previously. It is the gap between the backing plate and the rotary member. This discussion of a gap is meaningless with respect to the suggestion of anything to those skilled in the art with respect to the positioning of a brush at a spacing from the rotary surface as required by Applicant. This distinction has nothing to do with obvious choice of mechanical design because those skilled in the art, based upon Atkinson, et al, would direct their efforts toward producing a seal that maintains a contact sufficient to maintain a high differential pressure while maintaining a suitable gap between the backing plate and the rotary member. There are no such requirements in Applicants claimed invention. There is no corresponding restriction on such a gap and the seal is positioned so that cooling air passes to the inside of the inner barrel to a passage for cooling air.

It is further pointed out that Applicant’s claim requires a multi-stage axial compressor with the compressor having a rotor with a cylindrical outer surface downstream of the last stage of the compressor, a turbine shaft coupled to the rotor of the compressor, a stationary inner barrel for passing cooling air from the compressor through a chamber formed by the inner barrel prior to mixing with the combustion gases, a brush seal for restricting air passage into the chamber from the compressor with the brush seal being formed by a ring shaped holder, including a multiplicity of brush members and means for fastening the holder to the inner barrel member.

It is respectfully pointed out that there is no suggestion in Atkinson, et al that the disclosed seal is used in any way in combination with an axial compressor. To the contrary, this reference is directed to the use a seal in a jet aircraft and it is not at all clear

that a compressor is used in combination with this turbine. In other words, the inlet air may be provided simply by compression of the air as the result of the motion of the aircraft. No information with respect to this usage is provided by Atkinson, et al.

As noted previously, the seals in Atkinson, et al are disclosed to seal a gap between a rotating engine structure or member and a non-rotating structural member. There is no suggestion that a seal should be used in cooperative operation between an axial compressor and a turbine. Specifically, there is no suggestion that a seal of this type should be used to regulate the flow of air rather than stop the flow of air. These are significant differences and Atkinson, et al would not suggest to one skilled in the art the use of a seal in the specific application claimed by Applicant to regulate the flow of air rather than stop the flow of air and there is no suggestion in Atkinson, et al that this type seal should be applied to a stationary turbine installation.

In view of these distinctions, it is respectfully submitted that Atkinson, et al does nothing to show or suggest Applicant's Claim 41 and it is respectfully requested that all rejections of Applicant's Claim 41 in view of Atkinson, et al be withdrawn.

The withdrawal of Atkinson, et al removes the only possible impediment to the Patent Office's declaration of an Interference between Applicant's claimed invention and the '590 Patent.

The Patent Office's extensive delay already in this matter has increased the difficulty to Applicant's establishing his right to priority as a result of the movement of personnel, the passage of time and the like. This is an unreasonable and unfair delay and is unconscionable considering the fact that even a casual observation of the claims and drawings of the two patents indicate that they are for the same invention and further in view of the fact that a Petition to Make Special has been granted in this Application.

It is noted that Claims 42-52 have been rejected on the same basis as they were rejected in an Office Action June 4, 1998, in U.S. case 08/892,738, which is a parent case to the subject application. Upon review of this Office Action, it appears that the rejection has been restated in the present Office Action with respect to Claims 42-52. The rejection, as currently stated, will be considered in view of the comments appearing in the present Office Action.

Claims 42-52 have been rejected under 35 U.S.C. 103(a) as unpatentable over the '590 Patent. This rejection is respectfully traversed and reconsideration is respectfully requested.

The issue raised by the Examiner that the only difference between Applicant's Claims 42-52 and the '590 Patent is the difference between a number value placed on a gap and the lack of a number placed on a gap is noted. The issue has been discussed above and it is submitted that Applicant's claims are allowable, absent the '590 Patent, and the Examiner's position confirms the identity of invention with the '590 Patent.

The Examiner's comments that the '590 Patent invention and Applicant's invention are not substantially the same is respectfully traversed. the '590 Patent is argued by the Examiner to relate to the arrangement of seals, such as a brush seal in tandem with a knife seal, whereas Applicant's Claim 41 does not require knife seals. The Examiner's attention is respectfully directed to Claim 42, which does require knife seals in conjunction with a brush seal. Applicant's dependent claims define Applicant's invention as does Claim 41. Applicant also points out that the Examiner's reliance upon the statement of the clearance of brushes in Applicant's claimed invention to distinguish Applicant's claimed invention from the '590 Patent, is demonstrably in error when even a casual observation of the drawings in this application and in the '590 Patent reveals that both inventions require a spacing between the brush and the rotary member.

The Examiner also argues that since there are no structural differences, both should have the same effects. The Applicant can whole-heartedly agree that since the '590 Patent and Applicant's invention include no structural differences, there is very little, if any, difference in the effects. This supports Applicant's contention that the inventions are, in fact, the same and that an Interference is proper and should have been declared years ago. and is again requested.

The Examiner's position with respect to limitations in the preamble has been discussed and as previously noted, it is believed that this preamble is properly included in the claim but even if not, the elements of the claim still define the invention.

The Examiner's argument that the leakage of gas around the brush seal is not recited in the claims is traversed with the Examiner's attention being directed to Claim 41,

wherein it is indicated that air flows from the compressor, passing outside the inner barrel into a chamber in the inner barrel forming a passage for cooling air from the compressor, with the cooling air flowing from the chamber and being mixed with the combustion gases upstream from the turbine. The brush seal is then disclosed for restricting air passage into the chamber from the compressor. This appears to define the affect achieved by the members making up the claimed elements. It is difficult to see how the Examiner can conclude that this distinction is not in the claims. As noted previously, the '590 Patent also shows a gap between the brush and the rotary member.

It is believed clear in view of the foregoing discussion that Applicant's claimed invention is the same as the invention claimed by the '590 Patent. The '590 Patent claims are directed to a "refurbished gas turbine engine component having at least one knife-edged seal for inhibiting air leakage to an inner connect component gap between the component and a second component."

Applicant's specification clearly discusses the replacement of seals and the position of seals on units that did not originally include seals to refurbish the unit. The resulting unit is within the scope of the claims of the Applicant where originally fabricated with seals and subsequently refurbished or whether refurbished after initially having no seals. It is further noted specifically that Applicant's Claims 42-52 have been rejected only over the '590 Patent. The applicability of 35 CFR 1.601(n) to this rejection is abundantly clear since the rejection has been made over the patent with which Interference is sought. It is clear that under 35 CFR 1.601(n) an Interference must be declared.

Further as discussed previously, recent court decisions have confirmed that this section sets forth the criteria for determining the propriety of an Interference.

In view of the rejection of Applicant's Claims 42-52 under only the '590 Patent under 35 U.S.C. 103, that it is clear that 37 CFR 1.601(n) requires that an Interference be declared.

In view of the foregoing comments, it is respectfully submitted that none of Applicant's claims have been shown or suggested by Atkinson, et al and it is respectfully requested that all rejections based upon this reference be withdrawn.

In view of the foregoing comments, it is also believed clear that none of Applicant's claims have been shown or suggested by any of the cited references, taken singularly or in combination. Accordingly, it is respectfully submitted that Applicant's Claims 41-52 are all in condition for allowance and that these claims have been shown to clearly claim the same invention as the '590 Patent and it is respectfully requested that the U.S. Patent Office following existing case and statutory law and promptly declare an Interference between the '590 Patent and Applicant's application.

As discussed above, even the Examiner's conclusions support the conclusion that this application is for the same invention claimed in the '590 Patent. An Interference between this application and the '590 Patent is clearly proper and should have been declared years ago. The incredible string of delays for spurious reasons by the Patent Office has been documented previously and it is respectfully submitted that in view of this Appeal, a declaration of Interference is proper and it is respectfully requested that an Interference be promptly declared between this application and the '590 Patent.

Respectfully submitted,



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ATTACHMENT 1

CLAIMS AS CURRENTLY PENDING

41. A stationary gas turbine engine for a power plant, comprising:

(a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;

(b) a turbine shaft-coupled to the rotor of the compressor;

(c) a combustor fluid coupled between the compressor and the turbine;

(d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a passage for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine;

(e) a brush seal for restricting air passage into the chamber from the compressor, the brush seal comprising:

(i) a ring-shaped holder;

(ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(iii) means for fastening the holder to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

42. A stationary gas turbine engine for a power plant, comprising:

(a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;

(b) a turbine shaft-coupled to the rotor of the compressor;

- (c) a combustor fluid coupled between the compressor and the turbine;
- (d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a main passage and containing a labyrinth seal comprising at least one knife-edge member positioned on the barrel member for controlling air leakage through the labyrinth for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine; and
- (e) a brush seal positioned on the barrel member and upstream from the labyrinth seal for restricting air passage into the chamber from the compressor, the brush seal comprising:
 - (i) a ring-shaped holder;
 - (ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and
 - (iii) the holder being fastened to the inner barrel member,wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor and whereby air flow into the compressor is impeded.

45. The engine of Claim 42, further comprising an insert ring connecting segments of the inner barrel member, the insert ring being located proximate the land region of the rotor, the holder being fastened to the insert ring by a plurality of threaded fasteners.

46. The engine of Claim 45, wherein the brush seal, including the holder thereof is segmented for facilitating assembly with the insert ring.

47. In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor

and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, the improvement comprising a brush seal connected to the inner barrel and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

- (a) a ring-shaped holder;
- (b) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and
- (c) the holder being fastened to the inner barrel member, wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

48. A method for controlling cooling air flow in a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, comprising the steps of:

- (a) providing a brush seal having a ring-shaped holder, a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder;
- (b) connecting the brush seal in augmenting relation to the labyrinth seal; and
- (c) spacing the bristle members from the land region of the rotor by an ambient temperature clearance of not less than 0.015 percent of the diameter D when the power plant is inactive.

49. The method of Claim 48, wherein the power plant includes an insert ring fastened to the inner barrel member in axially spaced relation to a portion of the rotor member, the method comprising the further steps of:

- (a) removing the insert ring from the inner barrel member;
- (b) providing an adapter ring;
- (c) mounting the brush seal to the adapter ring; and
- (d) fastening the adapter ring to the inner barrel member in place of the insert ring.

50. The method of Claim 49, wherein the step of providing the adapter ring comprises the step of modifying the insert ring.

51. The engine of Claim 43, wherein the barrel passage is one of a plurality of barrel passages.

52. A method for generating electrical power comprising the steps of:

- (a) providing the improved power plant of Claim 47; and
- (b) monitoring an operating parameter of the power plant.

APPENDIX A -

Claims filed in U.S. Serial No.08/656,564 filed May 31, 1996.
Application Allowed April 15, 1997. Abandoned in favor of Continuation
Application on July 15, 1997. Pending May 31, 1996 to July 15, 1997.

What is claimed is:

1. A stationary gas turbine engine for a power plant, comprising:

(a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D ;

(b) a turbine shaft-coupled to the rotor of the compressor;

(c) a combustor fluid coupled between the compressor and the turbine;

(d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a passage for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine;

(e) a brush seal for restricting air passage into the chamber from the compressor, the brush seal comprising:

(i) a ring-shaped holder;

(ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(iii) means for fastening the holder to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

2. The engine of claim 1, further comprising means for selectively altering the flow of cooling air from the chamber, comprising:

(a) a passage extending through one wall of the inner barrel;

(b) means for connecting the fluid port to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber; and

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air.

3. The engine of claim 2, wherein the compressor provides at least a portion of the auxiliary source.

4. The engine of claim 3, wherein the means for changeably restricting comprises means for removably mounting a device in the passage, the device being selected from the set consisting of a plug and a jet.

5. The engine of claim 1, wherein the means for selectively altering further comprises:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) means for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

6. The engine of claim 5, wherein the valve is a calibrated needle valve.

7. The engine of claim 5, wherein the means for monitoring comprises a temperature sensor for indicating a temperature within the chamber.

8. The engine of claim 5, further comprising an outer barrel surrounding the inner barrel and having a fluid port extending radially through one wall thereof, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, the means for connecting the fluid port comprising a fluid conduit connected between the passage and the fluid port, and means for connecting the auxiliary source of pressure air to the fluid port external of the outer barrel.

9. The engine of claim 1, further comprising an insert ring connecting segments of the inner barrel member, the insert ring being located proximate the land region of the rotor, wherein the means for fastening the brush seal to the inner barrel member comprises the holder being fastened to the insert ring by a plurality of threaded fasteners.

10. The engine of claim 9, wherein the brush seal, including the holder thereof is segmented for facilitating assembly with the insert ring.

11. In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D , the improvement comprising a brush seal connected to the inner barrel and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

(a) a ring-shaped holder;

(b) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(c) means for fastening the holder to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

12. The turbine power plant of claim 11, the further improvement comprising means for selectively altering the flow of cooling air from the chamber, comprising:

(a) a passage extending through one wall of the inner barrel;

(b) means for connecting the passage to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber;

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air.

13. In the turbine power plant of claim 11, wherein the means for selectively altering comprises:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) means for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

14. In the turbine power plant of claim 13, the further improvement wherein the means for adjustably restricting comprises a calibrated needle valve.

15. In the turbine power plant of claim 13, the further improvement wherein the means for monitoring comprises a temperature sensor for indicating a temperature within the chamber.

16. In the turbine power plant of claim 13, wherein the power plant also having an outer barrel surrounding the inner barrel, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, the further improvement comprising a fluid port extending radially through one wall of the outer barrel, the means for connecting the fluid port comprising a fluid conduit connected between the passage and the fluid port, and means for connecting the auxiliary source of pressure air to the fluid port external of the outer barrel.

17. A method for controlling cooling air flow in a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D , comprising the steps of:

(a) providing a brush seal having a ring-shaped holder, a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder;

(b) connecting the brush seal in augmenting relation to the labyrinth seal; and

(c) spacing the bristle members from the land region of the rotor by an ambient temperature clearance of not less than 0.015 percent of the diameter D when the power plant is inactive.

18. The method of claim 17, wherein the power plant includes an insert ring fastened to the inner barrel member in axially spaced relation to a portion of the rotor member, the method comprising the further steps of:

(a) removing the insert ring from the inner barrel member;

(b) providing an adapter ring;

(c) mounting the brush seal to the adapter ring; and

(d) fastening the adapter ring to the inner barrel member in place of the insert ring.

19. The method of claim 18, wherein the step of providing the adapter ring comprises the step of modifying the insert ring.

20. The method of claim 17, comprising the further steps of:

(a) providing an auxiliary source of pressure air;

(b) fluid-connecting the auxiliary source to an interior cavity portion of the inner barrel member for augmenting the flow of cooling air;

(c) connecting an adjustable valve between the auxiliary source and the inner barrel member for variably restricting air flow from the auxiliary source and the inner barrel member;

(d) monitoring an operating parameter of the power plant; and

APPENDIX B - Notice of Allowance on U.S. Serial No.08/656,564 filed May 31, 1996



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NOTICE OF ALLOWANCE AND ISSUE FEE DUE

34M1/0415

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*Issue Fee and Formal Drawings
due July 15, 1997*

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/656,564	05/31/96	020	KWON, J 3401	04/15/97

Named Inventor: INGISTOV, STEVE

INVENTION: TURBINE POWER PLANT HAVING MINIMAL-CONTACT BRUSH SEAL AUGMENTED LABYRINTH SEAL.

PTO'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPL. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
11465	415-170.100	M01	UTILITY	NO	\$1290.00	07/15/97

APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT.
EXECUTION ON THE MERITS IS CLOSED.

ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

Review the SMALL ENTITY status shown above.
If the SMALL ENTITY is shown as yes, verify your current SMALL ENTITY status:

If the status is changed, pay twice the amount of the FEE DUE shown and notify the Patent and Trademark Office of the change in status, or
If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

A. Pay FEE DUE shown above, or

B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

Part B of this notice should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE.
If the ISSUE FEE has already been paid by charge to deposit account, Part B should be completed and returned.
If you are charging the ISSUE FEE to your deposit account, section "6b" of Part B should be completed.

All communications regarding this application must give application number and batch number.
Please direct all communication prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Patents Issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Notice of Allowability

Application No.
08/656,564

Applicant(s)
Steve Ingistov

Examiner
John T. Kwon

Group Art Unit
3401



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☐ This communication is responsive to _____

☒ The allowed claim(s) is/are 1-20

☐ The drawings filed on _____ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☒ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. 2

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☐ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☐ Examiner's Statement of Reasons for Allowance

JOHN T. KWON
PRIMARY EXAMINER
ART UNIT 3401

APPENDIX C -

Claims filed in U.S. Serial No.08/892,738 filed July 15, 1997.

Claims 5-8, 13-16, 20 and 22-24 issued October 5, 1999. (Claims 1-4, 9-12, 17-19, 21, 25 and 26 filed in Continuation Application 09/288,943 filed April 9, 1998. Pending July 15, 1997 through March 30, 1999.)

What is claimed is:

1. A stationary gas turbine engine for a power plant, comprising:
 - (a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;
 - (b) a turbine shaft-coupled to the rotor of the compressor;
 - (c) a combustor fluid coupled between the compressor and the turbine;
 - (d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a passage for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine;
 - (e) a brush seal for restricting air passage into the chamber from the compressor, the brush seal comprising:
 - (i) a ring-shaped holder;
 - (ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and
 - (iii) means for fastening the holder to the inner barrel member,wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

2. The engine of claim 1, further comprising means for selectively altering the flow of cooling air from the chamber, comprising:

(a) a passage extending through one wall of the inner barrel;

(b) means for connecting the fluid port to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber; and

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air.

3. The engine of claim 2, wherein the compressor provides at least a portion of the auxiliary source.

4. The engine of claim 3, wherein the means for changeably restricting comprises means for removably mounting a device in the passage, the device being selected from the set consisting of a plug and a jet.

5. The engine of claim 1, wherein the means for selectively altering further comprises:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) means for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

6. The engine of claim 5, wherein the valve is a calibrated needle valve.

7. The engine of claim 5, wherein the means for monitoring comprises a temperature sensor for indicating a temperature within the chamber.

8. The engine of claim 5, further comprising an outer barrel surrounding the inner barrel and having a fluid port extending radially through one wall thereof, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, the means for connecting the fluid port comprising a fluid conduit connected between the passage and the fluid port, and means for connecting the auxiliary source of pressure air to the fluid port external of the outer barrel.

9. The engine of claim 1, further comprising an insert ring connecting segments of the inner barrel member, the insert ring being located proximate the land region of the rotor, wherein the means for fastening the brush seal to the inner barrel member comprises the holder being fastened to the insert ring by a plurality of threaded fasteners.

10. The engine of claim 9, wherein the brush seal, including the holder thereof is segmented for facilitating assembly with the insert ring.

11. In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D , the improvement comprising a brush seal connected to the inner barrel and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

(a) a ring-shaped holder;

(b) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(c) means for fastening the holder to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

12. The turbine power plant of claim 11, the further improvement comprising means for selectively altering the flow of cooling air from the chamber, comprising:

(a) a passage extending through one wall of the inner barrel;

(b) means for connecting the passage to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber;

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air.

13. In the turbine power plant of claim 11, wherein the means for selectively altering comprises:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) means for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

14. In the turbine power plant of claim 13, the further improvement wherein the means for adjustably restricting comprises a calibrated needle valve.

15. In the turbine power plant of claim 13, the further improvement wherein the means for monitoring comprises a temperature sensor for indicating a temperature within the chamber.

16. In the turbine power plant of claim 13, wherein the power plant also having an outer barrel surrounding the inner barrel, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, the further improvement comprising a fluid port extending radially through one wall of the outer barrel, the means for connecting the fluid port comprising a fluid conduit connected between the passage and the fluid port, and means for connecting the auxiliary source of pressure air to the fluid port external of the outer barrel.

17. A method for controlling cooling air flow in a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D , comprising the steps of:

(a) providing a brush seal having a ring-shaped holder, a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder;

(b) connecting the brush seal in augmenting relation to the labyrinth seal; and

(c) spacing the bristle members from the land region of the rotor by an ambient temperature clearance of not less than 0.015 percent of the diameter D when the power plant is inactive.

18. The method of claim 17, wherein the power plant includes an insert ring fastened to the inner barrel member in axially spaced relation to a portion of the rotor member, the method comprising the further steps of:

(a) removing the insert ring from the inner barrel member;

(b) providing an adapter ring;

(c) mounting the brush seal to the adapter ring; and

(d) fastening the adapter ring to the inner barrel member in place of the insert ring.

19. The method of claim 18, wherein the step of providing the adapter ring comprises the step of modifying the insert ring.

20. The method of claim 17, comprising the further steps of:

(a) providing an auxiliary source of pressure air;

(b) fluid-connecting the auxiliary source to an interior cavity portion of the inner barrel member for augmenting the flow of cooling air;

(c) connecting an adjustable valve between the auxiliary source and the inner barrel member for variably restricting air flow from the auxiliary source and the inner barrel member;

(d) monitoring an operating parameter of the power plant; and

(e) adjusting the adjustable valve in response to changes in the operating parameter.

APPENDIX D - Preliminary Amendment in Continuation Application U.S. Serial
No.09/288,943 filed April 09, 1999.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re prior application of: Steve Ingistov

Prior Serial No. : 08/892,738

Filed: July 15, 1997

Group Art Unit: 3401

Examiner: J. Kwon

Title : TURBINE POWER PLANT HAVING MINIMAL-CONTACT BRUSH
SEAL AUGMENTED LABYRINTH SEAL

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

The following Preliminary Amendment is submitted in the subject application.

IN THE SPECIFICATION

At page 1, the first line in the third paragraph is amended to read "Leakage in excess [if] of a predetermined amount that".

At page 2, in the second line, the word "due" is added after the word "seal".

At page 8, in the fifth and seventh lines, the numeral "18" is changed to be the numeral "24". The eighteenth line is revised to read as follows: "32 that also supports a final stator member [34] 17S of the".

At page 9, in the fourth and fifth lines from the bottom of the page, the numeral "40" is deleted.

On page 10, in line 2, the numeral "24" is changed to the numeral "42". In the second line of the paragraph beginning near the top of page 10, the numeral "40" is deleted; and in the eleventh line from the bottom of the page, the numeral "40" is deleted.

On page 12, in the fifth and sixth lines of the paragraph beginning near the top of page 12, the numeral "70" is deleted; and in the eighth line from the bottom of the page, the numeral "40" is deleted.

On page 13, in the seventh line, after the word "that", the article "a" is added.

IN THE CLAIMS

Please cancel Claims 1-20.

Please add new Claims 21-31 as follows.

21. A stationary gas turbine engine for a power plant, comprising:
- (a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;
 - (b) a turbine shaft-coupled to the rotor of the compressor;
 - (c) a combustor fluid coupled between the compressor and the turbine;
 - (d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a main passage and containing a labyrinth seal comprising at least one knife-edge member positioned on the barrel member for controlling air leakage through the labyrinth for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine; and
 - (e) a brush seal positioned on the barrel member and upstream from the labyrinth seal for restricting air passage into the chamber from the compressor, the brush seal comprising:
 - (i) a ring-shaped holder;

(ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(iii) the holder being fastened to the inner barrel member, wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor and whereby air flow into the compressor is impeded.

22. The engine of Claim 21, further comprising a barrel passage extending through one wall of the inner barrel for passing air therethrough downstream of the brush seal, thereby altering the flow of cooling air from the chamber to be mixed with the combustion gases upstream of the turbine.

23. The engine of Claim 22, further comprising a structure for restricting the barrel passage.

24. The engine of Claim 21, further comprising an insert ring connecting segments of the inner barrel member, the insert ring being located proximate the land region of the rotor, the holder being fastened to the insert ring by a plurality of threaded fasteners.

25. The engine of Claim 24, wherein the brush seal, including the holder thereof is segmented for facilitating assembly with the insert ring.

26. In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, the improvement comprising a brush seal connected to the inner barrel

and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

- (a) a ring-shaped holder;
 - (b) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and
 - (c) the holder being fastened to the inner barrel member,
- wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

27. A method for controlling cooling air flow in a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, comprising the steps of:

- (a) providing a brush seal having a ring-shaped holder, a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder;
- (b) connecting the brush seal in augmenting relation to the labyrinth seal; and
- (c) spacing the bristle members from the land region of the rotor by an ambient temperature clearance of not less than 0.015 percent of the diameter D when the power plant is inactive.

28. The method of Claim 27, wherein the power plant includes an insert ring fastened to the inner barrel member in axially spaced relation to a portion of the rotor member, the method comprising the further steps of:

- (a) removing the insert ring from the inner barrel member;
- (b) providing an adapter ring;

- (c) mounting the brush seal to the adapter ring; and
- (d) fastening the adapter ring to the inner barrel member in place of the insert ring.

29. The method of Claim 28, wherein the step of providing the adapter ring comprises the step of modifying the insert ring.

30. The engine of Claim 22, wherein the barrel passage is one of a plurality of barrel passages.

- cancel*
- 31. A method for generating electrical power comprising the steps of:
 - (a) providing the improved power plant of Claim 11; and
 - (b) monitoring an operating parameter of the power plant.

Please add new Claims 32-40 as follows.

32. A refurbished gas turbine engine component having at least one knife edge seal for inhibiting air leakage through an intercomponent gap between the component and a second component, the refurbished component characterized by:

a brush seal mounted on the refurbished component in tandem with the knife edge seal, the bristles of the brush seal extending toward the second component for impeding the leakage of air through the intercomponent gap.

33. The refurbished component of Claim 32 characterized in that the component comprises two component segments, the brush seal is also segmented and the brush seal segments are mounted in a circumferentially extending groove so that the seal is installable and removable by

separating the component segments and sliding the brush seal segments circumferentially in the groove.

34. A method of improving the air sealing effectiveness between a rotating component and a nonrotating component in a turbine engine, the rotating and nonrotating components being separated by a gap with knife edge seals extending across the gap to inhibit leakage of air therethrough, the method characterized by:

providing a brush seal;

reconfiguring the nonrotating component to provide means for receiving and retaining the brush seal in tandem with the knife edge seals; and

installing the brush seal so that the seal bristles extend toward the rotating component to impede the flow of air through the gap, the brush seal being retained by the receiving and retaining means.

35. The method of Claim 34 wherein the nonrotating component is hollow and substantially cylindrical and has a wall thickness and a face, the method characterized in that the step of reconfiguring the nonrotating component includes:

creating a capture slot in the face of the nonrotating component for radially retaining the brush seal; and

attaching a retainer to the nonrotating component so that the retainer cooperates with the face to axially trap the brush seal.

36. The method of Claim 35 characterized in that the reconfiguring step includes reducing the wall thickness by a predefined amount in the vicinity of the face to form a seal seat and accommodate the radial dimension of the brush seal.

37. The method of Claim 35 characterized in that the reconfiguring step regulates the axial length of the nonrotating component.

38. The method of Claim 34 wherein the brush seal is a multilayered brush seal.

39. The method of Claim 34 wherein the nonrotating component comprises upper and lower component segments each component segment subtending approximately 180 degrees of arc, and the brush seal comprises an upper brush seal segment subtending approximately 180 degrees of arc and one or more lower brush seal segments, the lower brush seal segments collectively subtending approximately 180 degrees of arc.

40. A method of improving the air sealing effectiveness between a rotating component and a nonrotating component in a turbine engine, the nonrotating component being hollow and substantially cylindrical and having a wall thickness and a face, the rotating and nonrotating components being separated by a gap with knife edge seals extending across the gap to inhibit leakage of air therethrough, the method characterized by:

reconfiguring the nonrotating component by reducing its axial length by a predetermined amount and reducing its wall thickness in the vicinity of the face by a predefined amount whereby a seal seat is formed;

creating an axially and circumferentially extending capture slot in the face of the nonrotating component;

attaching a retainer to the face so that the retainer cooperates with the face and the seal seat to define a circumferentially extending groove; and

installing a brush seal in the groove so that the bristles of the seal extend toward the rotating component to impede the flow of air through the gap;

the brush seal being radially retained by the capture slot and the seal seat and axially retained by the retaining ring and the face.

COMMENTS

New Claims 21-31 represent the non-allowed claims from U.S. Serial No. 08/892,738 which do not include features related to the admission of cooling air into the barrel of the turbine engine in addition to that passing the brush seal. The claims which include this feature have been allowed. Claim 21 has been amended slightly by comparison to Claim 1. The only reference cited against the remaining claims was U.S. Patent 5,630,590 (the '590 Patent), issued May 20, 1997 to Joseph P. Bouchard and Merrell W. Long and assigned on its face to United Technologies Corporation. The '590 Patent was filed March 26, 1996.

The parent application to the subject application was filed as U.S. Serial Number 08/656,564 May 3, 1996.

Under 37 CFR 1.608(a) "When the effective filing date of an application is three months or less after the effective filing date of a patent, before an interference will be declared, either the applicant or applicant's attorney or agent of record shall file a statement alleging that there is a basis upon which the applicant is entitled to a judgment relative to the patentee. 37 CFR 1.607(a) provides that:

"(a) An applicant may seek to have an interference declared between an application and an unexpired patent by,

- (1) Identifying the patent,
- (2) Presenting a proposed count,
- (3) Identifying at least one claim in the patent corresponding to the proposed count,
- (4) Presenting at least one claim corresponding to the proposed count, and
- (5) Applying to the terms of any application claim,
 - (i) Identified as corresponding to the count, and

- (ii) Not previously in the application to the disclosure of the application.
- (6) Explaining how the requirements of 35 U.S.C. 135(b) are met, if the claim presented or identified under paragraph (a)(4) of this section was not present in the application until more than one year after the issue date of the patent."

Even a cursory review of the drawings of the '590 Patent and Applicant's drawings reveals that the invention claimed is the same.

It is proposed that an acceptable count for this interference is as follows.

COUNT

A gas turbine engine, the first component having at least one knife edge seal for inhibiting air leakage through an intercomponent gap between the first component and the second component, the first component characterized by a brush seal mounted on the first component in series with the knife edge seal, the bristles of the brush seal extending toward the second component for impeding the leakage of air through the inner-component gap.

This proposed Count is substantially Claim 1 of the '590 Patent, restated to cover gas turbines generally, rather than only refurbished gas turbines.

This Count is considered suitable to the Applicant. It is considered that Applicant's Claim 21 corresponds to this Count and claims each element recited in the Count. In Applicant's Claim 21, a stationary gas turbine engine is claimed. The engine includes a rotor having a cylindrical land region which corresponds to the second component in the '590 Patent and a stationary inner barrel downstream of the compressor which corresponds to the first component in the '590 Patent claim. Applicant's claim includes a labyrinth seal including at least one knife-edge seal and a brush seal, both of which are mounted on the first component for controlling passage of air between the two components. Accordingly, it is clear that all elements of the '590 Patent, Claim 1, are included in Applicant's Claim 21 as presently pending.

Applicant considers that the invention claimed in the '590 Patent is the same invention claimed in the subject application. Accordingly, it is believed clear that Applicant's claimed invention and that claimed in the '590 Patent are the same invention.

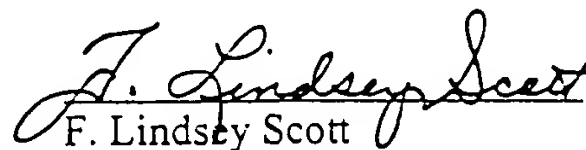
STATEMENT

It is considered that the subject application claims the same invention as the '590 Patent, as discussed above. Under 37 CFR 1.608(a), a statement by Applicant's attorney is required to initiate an interference when the effective filing date of an application is less than three months after the effective filing date of the patent. The subject application has an effective filing date of May 31, 1996 and the '590 Patent has an effective filing date of March 26, 1996--less than three months before the effective filing date of this application. Applicant's attorney hereby states that, upon investigation, there is a basis in Applicant's attorney's opinion, upon which the Applicant is entitled to a judgment relative to the patentee in an interference.

It is hereby respectfully requested that an interference be declared between the subject application and U.S. Patent 5,630,590.

Accordingly, it is respectfully requested that the Examiner determine that an interference should be declared and that the Examiner prepare and forward interference papers to the Board as provided in 37 CFR 1.609.

Respectfully submitted,



F. Lindsey Scott
Registration No. 26,230
Attorney for Applicant

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APPENDIX E - Second Preliminary Amendment in Continuation Application
U.S. Serial No.09/288,943 filed April 09, 1999.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Steve Ingistov

Serial No. : 09/288,943

Filed: April 9, 1999

Group Art Unit: 3745

Examiner: Kwon

Title : TURBINE POWER PLANT HAVING MINIMAL-CONTACT BRUSH
SEAL AUGMENTED LABYRINTH SEAL

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

SECOND PRELIMINARY AMENDMENT

The following Second Preliminary Amendment is submitted in the subject application.

IN THE CLAIMS

Please cancel, without prejudice, Claims 21-31.

COMMENTS

As previously indicated, Applicant seeks to initiate a patent interference with U.S. Patent 5,630,590 (the '590 Patent) with this application. The filing date to which the subject application is entitled and the filing date of the '590 Patent differ by less than three months. Accordingly, it is believed that the criteria for the declaration of an interference are set forth under 37 CFR 1.608(a).

To expedite prosecution and the initiation of an interference, Applicant has cancelled all claims, without prejudice, except for those claims copied from the '590 Patent.

As stated previously, it is the opinion of Applicant's attorney that the subject application claims the same invention as the '590 Patent and that there is a basis upon which Applicant is entitled to judgment relative to the patentee.

In further support of this opinion, a claim chart has been attached which refers to support for the copied claims in Applicant's specification. The chart shows the supporting material by reference to U.S. Patent 5,961,279 which is the parent of the subject application, and includes the same material in its specification. It is believed clear that all of the copied claims find support in Applicant's specification, except for small obvious differences which are primarily differences in phraseology.

Please amend the previously proposed count to read as follows.

COUNT

A gas turbine engine[, the] having a first component having at least one knife edge seal for inhibiting air leakage through an intercomponent gap between the first component and [the] a second component, the first component characterized by:

a brush seal mounted on the first component in [series] tandem with the knife edge seal, the bristles of the brush seal extending toward the second component for impeding the leakage of air through the [inner] inter-component gap.

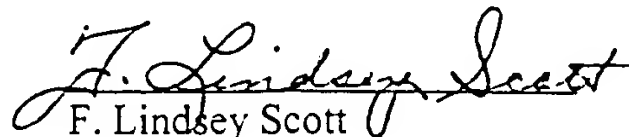
This proposed Count is substantially Claim 1 of the '590 Patent, restated to cover gas turbine components generally, rather than only refurbished gas turbine components.

It is considered that Applicant's Claim 32 corresponds to this count which has been changed from Claim 32 only to eliminate the requirement for a refurbished gas turbine engine component since the brush seal is also useable with new turbine installations.

Applicant submits that the invention claimed in the '590 Patent is the same invention claimed in the subject application.

Accordingly, it is believed that all claims now included in this application are in condition for allowance and it is respectfully requested that the Examiner determine that an interference should be declared and that the Examiner prepare and forward interference papers to the Board, as provided in 37 CFR 1.609.

Respectfully submitted,


F. Lindsey Scott
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Attorney for Applicant

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